WHAT IS CLAIMED IS:

1. A decoding apparatus for carrying out a maximum-likelihood decoding process based on a Viterbi algorithm on a data train completing a convolution-encoding process, said decoding apparatus comprising:

computation means for carrying out a trellis computation for decoding a data train completing said convolution-encoding process; and

control means for controlling said trellis computation so as to be carried out by said computation means with processing timings in processing units each corresponding to a process carried out on n bits of pre-encoding data, wherein each of said processing units is parallel processing carried out on computation results obtained for 2^n states with one of said processing timings, which immediately precedes a present one of said processing timings, to find computation results with said present processing timing for said 2^n states.

2. A decoding apparatus according to claim 1, said decoding apparatus further having a memory for storing computation results obtained with said immediately preceding processing timing and said present processing timing, wherein, during each of said processing units, said computation results obtained for 2^n states with said

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immediately preceding processing timing are read out from a storage area of said memory and said computation results found with said present processing timing for said 2^n states are stored into the same storage area.

3. A decoding method for carrying out a maximum-likelihood decoding process based on a Viterbi algorithm on a data train completing a convolution-encoding process, wherein a trellis computation for decoding a data train completing said convolution-encoding process is carried out with processing timings in processing units each corresponding to a process carried out on n bits of pre-encoding data, and each of said processing units is parallel processing carried out on computation results obtained for 2^n states with one of said processing timings, which immediately precedes a present one of said processing timings, to find computation results with said present processing timing for said 2^n states.

4. A decoding method according to claim 3, wherein, in each of said processing units, said computation results obtained for 2^n states with said immediately preceding processing timing are read out from a storage area of said memory, and said computation results found with said present processing timing for said 2^n states are stored into the same storage area.

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5. A data-receiving unit comprising a decoding unit for carrying out a maximum-likelihood decoding process based on a Viterbi algorithm on a data train completing a convolution-encoding process wherein said decoding unit comprises:

computation means for carrying out a trellis computation for decoding a received data train completing said convolution-encoding process; and

control means used for controlling said trellis computation so as to be carried out by said computation means with processing timings in processing units each corresponding to a process carried out on n bits of pre-encoding data, wherein each of said processing units is parallel processing carried out on computation results obtained for 2^n states with one of said processing timings, which immediately precedes a present one of said processing timings, to find computation results with said present processing timing for said 2^n states.

6. A data-receiving unit according to claim 5, said data-receiving apparatus further comprising a memory for storing computation results obtained with said immediately preceding processing timing and said present processing timing, wherein, during each of said processing units, said computation results obtained for 2^n

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states with said immediately preceding processing timing

are read out from a storage area of said memory and said

computation results found with said present processing

timing for said 2^n states are stored into the same storage

area.

7. A data-receiving method comprising a decoding

step of carrying out maximum-likelihood decoding

processing based on a Viterbi algorithm on a received

data train completing a convolution-encoding process,

wherein, in said decoding process, a trellis computation

for decoding a data train completing said convolution-

encoding process is carried out with processing timings

in processing units each corresponding to a process

carried out on n bits of pre-encoding data, and each of

said processing units is parallel processing carried out

on computation results obtained for 2^n states with one of

said processing timings, which immediately precedes a

present one of said processing timings, to find

computation results with said present processing timing

for said 2^n states.

8. A data-receiving method according to claim 7,

wherein, in each of said processing units, said

computation results obtained for 2^n states with said

immediately preceding processing timing are read out from

a storage area of said memory, and said computation

results found with said present processing timing for

said 2^n states are stored into the same storage area.